

534 Rec'd PCT/PTC 03 JUL 2000

We claim:

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1. An orotidine-5'-phosphate decarboxylase gene having the
5 sequence SEQ ID NO: 1 or its homologs which have at least 80%
homology with the sequence SEQ ID NO: 1.
2. An orotidine-5'-phosphate decarboxylase gene having the
10 sequence SEQ ID NO: 1 or its homologs, wherein the gene or
its homologs derive from *Ashbya gossypii*.
3. An amino-acid sequence encoded by a gene or its homologs as
claimed in claim 1 ~~or 2~~.
- 15 4. An amino-acid sequence as claimed in claim 3, which comprises
an enzymatically active protein.
5. A gene construct comprising an orotidine-5'-phosphate
20 decarboxylase gene having the sequence SEQ ID NO: 1 or its
homologs as claimed in claim 1 ~~or 2~~, where the gene or its
homologs is functionally linked to one or more regulatory
signals.
6. A gene construct as claimed in claim 5, whose gene expression
25 is increased by the regulatory signals.
7. A vector comprising a gene construct as claimed in claim 5 ~~or~~
~~6~~.
- 30 8. A microorganism comprising at least one gene construct as
claimed in claim 5 ~~or 6~~.
9. A process for producing uracil-auxotrophic microorganisms,
35 which comprises modifying an orotidine-5'-phosphate
decarboxylase gene having the sequence SEQ ID NO: 1 or its
homologs as claimed in claim 1 ~~or 2~~ in such a way that the
protein encoded by the gene is inactive, and this modified
gene is introduced into the microorganisms and integrated by
40 homologous recombination into the genome of the organisms,
and subsequently these microorganisms are selected for
resistance to 5-fluoroorotic acid.
10. A process for inserting DNA into microorganisms, which
45 comprises inserting a vector which comprises an intact
orotidine-5'-phosphate decarboxylase gene having the sequence
SEQ ID NO: 1 or its homologs as claimed in claim 1 ~~or 2~~,
together with at least one other gene, into a microorganism
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which is deficient in orotidine-5'-phosphate decarboxylase genes, and cultivating this microorganism on or in a culture medium without uracil.

5 11. A process as claimed in claim 10, wherein a linear DNA is used as vector.

a sub 93 12. A process as claimed in claim 10 ~~or 11~~, wherein an Ashbya
10 gossypii strain is used as microorganism deficient in orotidine-5'-phosphate decarboxylase genes.

a sub 15 13. A process as claimed in ~~any of claims 10 to 12~~, wherein at
15 least one gene of riboflavin synthesis is inserted as other gene into the microorganism.

14. The use of a gene sequence or its homologs as claimed in
claim 1 ~~or 2~~ as selection marker.

15. The use as claimed in claim 14 in Ashbya gossypii.
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